The Thoughtful Classroom™

MAKING STUDENTS AS IMPORTANT AS STANDARDS

Magnet Magic

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Third Grade
Holiday School

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Identify the standards and frame your purpose for learning

Kentucky Curriculum: Academic Expectations, Program of Studies, Core Content
What Standards will this work focus on? **SC-EP-1.2.1** **Students will describe and make inferences about the interactions of magnets with other magnets and other matter (e.g., magnets can make some things move without touching them).** **Magnets have observable properties that allow them to attract and repel each other and attract certain kinds of other materials (e.g., iron). Based on the knowledge of the basic properties of magnets, predictions can be made and conclusions drawn about their interactions with other common objects.**

What do you want students to KNOW?	What ATTITUDES or HABITS will students develop?
*Interactions of magnets with other materials. *Differences between repel and attract *Magnets have 2 poles-north and south *Magnets can attract objects through solid surfaces. *Effects of magnets of everyday items.	*Respect scientific ideas and theories. *Students will appreciate scientific ways of thinking and working and use those methods to solve real-life problems (Ac.Exp. 2.1) (Observations, predictions, & conclusions) *Take responsibility for being safety conscious with magnets. *Technology skills *Cooperation--group work
What do you want students to UNDERSTAND?	**What SKILLS will students develop?**
SC-P-MF-U-5 **Students will understand that magnetism is a force that can make some things move without touching them.** **Some objects are attracted to magnets and others objects are not.**	**SC-P-MF-S-6** **Students will observe interactions of magnets with other magnets and with other matter (e.g., magnets have a force that can make some things move without touching them; larger size of a magnet does not have to mean it has greater force) in order to make generalizations about the behavior of magnets** **SC-P-MF-S-8**

	Students will ask questions about motion, magnetism and sound and use a variety of print and non-print sources to gather and synthesize information **Identify how magnets are used in daily life.** **Predict and investigate to find out which common objects are attracted to and repelled by magnets.** **Investigate to find out how magnets attract and repel each other.**

What ESSENTIAL QUESTIONS will frame the learning?
***What are the physical properties of matter that you can see and feel that magnets attract? Repel?** ***Why are some objects attracted to magnets and others are not?** ***Where are magnets used?** **How many poles does a magnet have?** ***What determines the strength of a magnet?** ***Are all metals attracted to a magnet?** ***Can magnets attract objects through solid surfaces?** ***What is the vocabulary for when two magnets come together?**

Task Rotation

Subject Science (Magnets)
Grade Level 3

Hook: Have you ever had a fantastic piece of art or a terrific grade that you want to display in your home? The refrigerator is the most common place to display your work. Everyone goes into the kitchen, right? Magnets are the best way to attach work to the refrigerator door.

Mastery

A. Make a list of the materials in the box. Make a prediction beside each object as to whether the object will attract or repel to a magnet.
B. After you have made your predictions hold the magnet up to each object and record your finding.
C. Write one conclusion paragraph based on your findings.

Interspersonal

Webquest with a Wuddy

A. With a buddy, go to this website that is saved for you in "FAVORITES" titled Mr. Magneto Webquest www.uvm.edu/~inquiryb/webquest/spo4/shaw/Lisa.htm
B. Read the information that Mr. Magneto gives you.
C. Together write a summary of the definition of magnetism.

Understanding

Place a magnet bar on the overhead projector. Sprinkle iron filings 3 inches away from the magnet bar. Push the magnet bar slowly toward the iron filings one inch at a time. Once the filings start attracting to the iron bar, stop moving the magnet.

Assignment:
l. Write 2 questions you have about this activity.
2. Using what we have learned about magnets make inferences on how this occurred.

Self Expressive

Magnets are a force that makes things move and magnets can attract objects through solid surfaces.

USING MAGNETS TO PAINT

1. **Put a few objects made of iron in some paint.**
2. **Place the paint coated objects on top of a paper plate.**
3. **Put your magnet under the paper plate.**
4. **Pull the objects around on the paper plate.**

Answer this question:

l. **How was your magnet able to pull the objects around on the paper plate?**

Materials for Mastery: spoon, key, aluminum, penny, straight pin, paper clip and scissors
Materials for Self Expressive: paper plates, magnets, paint

Comprehensive Menu

Level	Mastery	Understanding	Self-Expressive	Interpersonal
1	Gathering Information	Examining Data	Generating Ideas	Expressing Feelings
2	Organizing Information	Interpreting Data	Reorganizing Ideas	Understanding Feelings
3	Presenting Information	Extrapolating Data	Creating Original Work	Acting on Feelings

Determine Your Assessments Throughout the Unit and Align them to your Essential Questions and Purpose

Essential Question	Assessment	Hidden Skills
1.What are the physical properties of matter that you can see and feel that magnets attract? Repel? 2.Why are some objects attracted to magnets and others are not? 3.Where are magnets used? 4.How many poles does a magnet have? 5.What determines the strength of a magnet? 6.Are all metals attracted to a magnet? 7.Can magnets attract objects through solid surfaces? 8.What is the vocabulary for when two magnets come together?	* Task rotation *Multiple choice questions *Open response question *Write paragraphs summarizing information. Experiments Observations	*Respect scientific ideas and theories. * Appreciate scientific ways of thinking and working and use those methods to solve real-life problems (Ac.Exp. 2.1) (Observations, predictions, inferring, & conclusions) *Take responsibility for being safety conscious with magnets. *Technology skills *Cooperation--group work

Vocabulary Instructional Map

Brainstorm the words students need for the unit/lesson, then prioritize.

Essential to Know

- Repel
- Attract
- Magnet
- Magnetism
- Matter
- Properties

Important to Know

- predict
- interpret
- data
- conclusion
- inference
- North pole
- South pole
- iron materials
- observe
- summarize

Nice to Know

- solid
- force
- interactions
- objects

Ask yourself how you will CODE the essential words?

Connect	☐ Word Walls ☐ Power Decoding X Word Spiders ☐ Associations ☐ See It, Say It, Show It ☐ Glossary ☐ Concept Attainment ☐ Multiple Meanings ☐ Word Catcher X Vocabulary Notebook
Organize	☐ Prioritizing Vocabulary ☐ Key Vocabulary Concept Map ☐ Categorizing ☐ Concept Maps X Fist List ☐ Word Banks ☐ Group and Label X Three Way Tie ☐ Diagram to Die For X Vocabulary Notebooks ☐ Other_____
Deep Process	Visualizing Vocabulary ☐ Multi-Sensory Processing ☐ Storytelling ☐ Metaphors ☐ Defining Characteristics ☐ Etymologies X Cinquains X Compare and Contrast Crazy Connections ☐ Other_____
Exercise and Elaborate	☐ Vocabulary Games X Write to Learn ☐ Team Game Tournaments ☐ Vocabulary Carousel ☐ Effective Practice ☐ Three's a Crowd ☐ Peer Practice X Boggle X Para-Writing ☐ Other_____

Establish Your Lesson/Unit Floor Plan

Rigor	Foyer (Knowledge Anticipation)	Authenticity
Rigor's goal is of helping students develop the capacity to understand content that is complex, ambiguous, provocative and personally or emotionally challenging.	*Using magnetic letters, spell out Essential vocabulary words on the board. *Lead discussion (questioning) through acquiring prior knowledge of the magnetic letters. *Minds Eye activity with the vocabulary *KWL chart	Authenticity's goal is that helping students acquire real-world skills and knowledge by developing their abilities to read, write, solve problems and apply content in a manner that prepare them for their lives beyond school.
Workshop (Practice) C – Etch A Sketch Word Spider O – Fist List 3 Way Tie Voc. Notebook D – Visualizing vocabulary Cinquain Compare/contrast Crazy connections E – Write to Learn Boggle Para Writing	Library (Knowledge Acquisition) 1.United Streaming – Real world Science: Magnetism 2. Text 3. Library Resource Books 4. Technology – Website 5. Magnet Kits6. Art 7. Task Rotation	Porch (Reflection) Journal Writing Knee to Knee Conference Think Pair Share KWL
Thought Thought's goal is that of pursuing a purpose under conditions of uncertainty. It requires developing students' abilities for managing uncertainties. Thinking inquiring, knowledge by thinking critically, conducting inquires, knowledge acquisition, problem solving communication and reflection.	Kitchen (Assessment) Task rotation Journal Entries Informal observations Window Notes ORQ	Diversity Diversity's goal is one of helping all students develop to the full their unique and personal potentials by varying instruction, assessment and content to both support and challenge them to acquire and understand their own resources and the resources of others.

What is your standard?	Lesson *"Room"*	Research Based	Product	Diversity
Purpose	**Activities**	**Tools & Strategies**	**Assessment & Criteria**	**Style & M.I.**
SC-EP-1.2.1 Students will describe and make inferences about the interactions of magnets with other magnets and other matter (e.g., magnets can make some things move without touching them). **Magnets have observable properties that allow them to attract and repel each other and attract certain kinds of other materials (e.g., iron). Based on the knowledge of the basic properties of**	**<u>Week One</u> Monday: Hook**	**Mind's Eye**	**KWL**	**Mastery Interpersonal Understanding Verbal Ling.**
	Tuesday: Make Vocabulary Books using construction paper as book covers. Write voc. words & definitions in booklets	**Voc. Book Etch A Sketch**	**Informal Observation**	**Mastery Self-Expressive Verbal Ling. Spatial**

magnets, predictions can be made and conclusions drawn about their interactions with other common objects.	Wednesday: Read pages from textbook & have Voc. Review Thursday: <u>Magnet Centers</u> l) Paper clip attraction 2)Library Books 3) To What will a magnet stick 4)Magnet Fields	3 Way Tie Think Pair Share Note Making Fist List Write to Learn	Informal Observation AR Test Journal Writing	Verbal Ling. Mastery Understanding Interpersonal Verbal ling. Logical-Math Spatial Interpersonal Naturalist Mastery Interpersonal Understanding Self-Expressive
	Friday: United Streaming Real World Science: Magnetism	Window Notes	Window Notes	Verbal Ling. Spatial Mastery Understanding Self-Expressive
	<u>Week Two</u> Monday: Write Poems	Cinquains	Cinquains	Verbal Ling. Logical Intrapersonal Mastery Self-Expressive

	Tuesday thru Friday: **Begin Task Rotations** **Students are grouped according to heterogeneous abilities. Four centers are set up within the classroom according to each task. Students are required to complete one task each day. Teacher acts as facilitator to the learning.**	**Task Rotation Mastery** **Interpersonal** **Understanding** **Self Expressive**	**M-Student accurately lists all objects, makes a prediction, and records data for each object. A final conclusion is written as a result of the activity.** **I-Definition of magnetism includes one of the following:** ***property of an object** ***attract another object** ***two substances that attract** ***properties of magnets** **U-Student writes two questions and student gives a logical explanation about magnetism** **S-Student gives a logical explanation that includes that magnets can pull objects through a solid surface.**	**Verbal Ling.** **Mastery** **Understanding** **Interpersonal** **Verbal ling.** **Logical-Math** **Spatial** **Interpersonal** **Naturalist** **Mastery** **Interpersonal** **Understanding** **Self-Expressive**
	<u>Week Three</u> **Monday thru Thursday:** **Compare and Contast** ***Phase 1:*** **<u>Description</u>** **3 column organizer repel/attract (middle vocabulary: iron materials, solid**	**Graphic organizer**	**Student completes organizer giving one example for each vocabulary**	**Verbal Ling.** **Mastery** **Understanding** **Interpersonal** **Verbal ling.** **Logical-Math** **Spatial** **Interpersonal** **Naturalist** **Mastery** **Interpersonal**

	materials, matter, shapes and sizes) ***Phase 2:*** **<u>Comparison</u>** **"M" Visual Organizer (similarities will be written on the 2 inside lines of the "M" and differences will be written on the outside lines. One for Repel and one for attract** ***Phase 3:*** **<u>Conclusion</u>** **Questions-Will all objects move toward a magnet? Are there some solid surfaces that a magnet will not pull through? Would the thickness of the solid surface let a magnet attract? Is all matter made of metal attracted to a magnet? Does the shape and size of a magnet determine it's strength?** ***Phase 4*: ORQ**	**Visual organizer** **Think-Pair-Share** **ORQ**	**word.** **Student identifies 2 written similarities and 2 differences.** **Informal observation through classroom discussion.** **Rubric**	**Understanding Self-Expressive**
	Friday: Game play review.	**Boggle**	**Informal assessment**	**Verbal Ling. Bodily Kinesthetic Interpersonal All Four Learning Styles**

Appendix

Assessment Criteria

Content Mastery: Does the student demonstrate a thorough knowledge of the content?	**Character:** Does the student demonstrate a set of positive personal attitudes?
Complex Problem Solving: Does the student solve problems thoughtfully? **Critical Thinking:** Does the work reflect complex and analytical thought?	**Creativity:** Is the work creative and original? Does it express this student's style? **Communication:** Does the student communicate effectively with diverse audiences?

MI Products/Performances

Verbal-Linguistic Products: Debates, journals, conferences, presentations, essays, stories, poems, plays, articles, interpretations, explanations, fables, letters, interviews, newscasts

Logical-Mathematical Products: Budgets, predictions, analyses, computer programs, experiments, sci-fi stories, mathematical problems, applications, court cases

Spatial Products: Maps, charts, tables, brochures, ads, flowcharts, design analysis, artistic projects, cartoons, comic strips, diagrams, museum exhibits, posters, collages

Bodily-Kinesthetic Products: Plays, dramatic sketches, dance, building/repair, sculptures, motivational speeches, hands-on demonstrations

Musical Products: Musical analysis, raps, jingles, blues, musical performances, investigating musical issues

Interpersonal Products: Investigating social or psychological issues, psychological analyses (e.g., of a fictional character), community projects, surveys, interviews, conferences, persuasive speeches, teaching concepts to others

Intrapersonal Products: Artistic projects, diaries, journals, goal-setting activities, projects involving personal choice, independent study, reflection activities, memoirs

Naturalist Products: Ecological analysis or problem-solving, experiments, taxonomies, environmental studies, caring for plants or animals

Appendix

Thinking Skills

SEQUENCING •In what order should it be arranged? ***ERROR ANALYSIS*** •Where are the errors? • How would they be corrected? ***DEEP DESCRIPTION/MAIN IDEA*** •What is not important? •What is missing? •What is wrong? ***PRIORITIZING*** •The five most important ideas are.	***COMPARING*** •How are X & Y similar? •How are X & Y different? ***CLASSIFYING*** •How could it be organized into groups? ***INDUCTION*** •What conclusions can you draw from the data? ***SUPPORT & REFUTE*** •What is the evidence for and against this position? ***CAUSAL ANALYZING*** •What are the causes of _____? ***DEFINING*** •What is the meaning of _____? ***QUESTIONING*** •What are some questions we could pose about_____?	***PREDICTING*** •What patterns can be seen and expanded? ***SPECULATING*** •What would be the possible effects? ***METAPHORICAL ANALYSIS*** •How is X like Y? •What metaphor best represents____ ? ***EXTRAPOLATION*** •What is the structure of _____? • How can we use it in a new setting? ***CREATING & INVENTING*** •How could we improve _____ or make something original?	***POINT OF VIEW*** •What are the different perspectives on it? ***EMPATHIZING*** •How would you feel if you were_____? ***DECISION MAKING*** •What is the best decision that could be made about it? ***RELATING*** •How does _____ relate to your life? ***REFLECTING*** •What are your plans for achieving _____?

Real World Connections

Careers	Design	Home	Family
Advertising & Publications	Legal & Political	Neighborhood	Recreation
The Arts	Medicine	Friends	Animals
Business & Economics	Science & Engineering	Plants	Personal History
Computer Science	Social Service		
Environment			

Issues & Dilemmas	Debate	The Arts	Self-Reflection
Philosophy	Ethics	Values	Fantasy
Law & Justice	Economics	Surprise	Personal Creation
Research	Pollution	Literature	

Use the following questions and rating scale to guide your reflection.

0-Not At All **1-Very Little** **2-Somewhat** **3-Considerably** **4-Thoroughly**

How clear are your purposes? Does your unit transform core content standards into essential content and core ideas for deep understanding? Are the critical vocabulary, skills for learning, how to learn, and appropriate habits and attitudes you want to instill clearly articulated?

0 1 2 3 4

Comments

How thoughtful and engaging are your essential questions? Are the essential questions clear and easy to comprehend? Do they provoke student interest? Can they be used as effective guides to focus student learning throughout the unit?

0 1 2 3 4

Comments

How rigorous and relevant is the content? Is the content challenging and meaningful to students? Are a variety of resources used to present ideas? Where appropriate, are a variety of perspectives presented? Does the content focus on meaningful concepts that have universal application? Are connections made to the students' lives outside of school?

0 1 2 3 4

Comments

How well does the unit integrate Research-Based strategies? Are a variety of Research-Based techniques used? Do the chosen tools and strategies promote active learning? Do they address the learning goals?

0 1 2 3 4

Comments

How well does the unit provide activities that address different learning styles and intelligences in a substantive way? Is time provided for students to reflect upon their own styles of learning and how they can expand their repertoire of talents and skills?

0 1 2 3 4

Comments

How well does the unit assess student progress and learning? Does the assessment system focus on varying depths of knowledge so all students can succeed? Does it assess students' abilities to synthesize key content? Does it build critical thinking skills and habits of mind? Is assessment thorough and ongoing?

0 1 2 3 4

Comments

How well does the unit follow an organized framework for learning? Does the unit allow students to work and learn in all the "rooms" of the unit blueprint? Does the unit have "flow" - are the transitions or segues from room to room smooth?

0 1 2 3 4

Comments